Environmental and Societal Benefits to Electrifying Transportation: Plug-In Hybrids Environmental Study

Contract#: E2I-WA-130
Contractor: Electric Power Research Institute
Contract Amount: $79,098.00
Contract Term: March 2007 to March 2008
Contractor Project Manager: Donn Baker
Commission Project Manager: Philip Misemer

The Issue

National interest in electric transportation, particularly plug-in hybrid electric vehicles (PHEVs), has increased dramatically, including near-daily major media exposure, incentive and research and development language in the Energy Policy Act of 2005, and public support by several senators and other prominent public figures. Much of this support is based on the potential societal benefits of electrifying transportation in general, and PHEVs in particular, including:

- Reduction in petroleum consumption leading to reduced dependence on imported oil and increased energy security.
- Reduction in carbon dioxide (CO_2) emissions.
- Improved air quality, particularly in urban areas with high levels of vehicle-related pollution.

Project Description

This research will quantify the net resulting energy consumption and emissions (carbon dioxide, carbon monoxide, volatile organic compounds, nitrogen oxides, sulfur dioxide, ammonia, particulate matter and mercury) from the expansion of electric transportation in California and other metropolitan regions.

PIER Program Objectives and Anticipated Benefits for California

This project will develop and help bring to market advanced transportation technologies that reduce air pollution and greenhouse gas emissions beyond applicable standards, and that benefit electricity and natural gas ratepayers. Specifically, this project will help California achieve the following goals:

- Reduce gasoline and diesel fuel demand to 15 percent below 2003 demand by 2020.
- Increase percentage of non-petroleum fuel usage to 20 percent by 2020 and 30 percent by 2030.

- By 2010, 2020, and 2050 reduce GHG emissions to 2000 levels, 1990 level and 80 percent below 1990 levels, respectively.

In addition, this project supports California's goal to research, develop and demonstrate engines and vehicles capable of using alternative fuels, new and retrofitted, to expand their availability per the Integrated Energy Policy Report 2005 by:

- Verifying an analysis methodology for further capturing of the environmental benefits of grid-connected or clean-fuel vehicles in California.
- Providing a detailed picture of the statewide air quality impacts of a large number of PHEVs charged from the electric grid.

Contact

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